REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 1-26 are pending in the application. Claims 1, 21, 22 and 26 are independent.

Specification

The specification has been amended to provide an abstract on a separate sheet in accordance with 37 CFR 1.72(b).

Claim Rejections - 35 U.S.C. §112 Second Paragraph

Claims 11, 13 and 24 were rejected under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. This rejection is traversed. Claims 11 and 24 have been amended to recite "suction effect" providing correct antecedent basis in the claims. It is asserted that claim 13, indirectly dependent on claim 1 which recites a Venturi section, already has a proper antecedent basis therein. It is, therefore, submitted that the rejection is overcome. Reconsideration is respectfully requested.

Claim Rejections - 35 U.S.C. §102

Claims 1-9, 19 and 22 were rejected under 35 U.S.C. 102(b) as being anticipated by WO 96/37281. Applicants respectfully traverse this rejection.

WO 96/37281 is directed to a bench top air purification device that essentially comprises a box like housing in which a fan is used to draw air to be treated into the housing. The air is drawn through a zigzag shaped filter containing a photocatalyst, then past a series of light sources and lastly through an outlet and out of the housing.

In contrast, the presently claimed invention is directed to a reactor in which a gas stream carrying air-borne volatile organic pollutants is admitted and circulated through a closed tubing system. The gas stream is drawn through the tubing system using a means for

admission, such as a fan. The gas stream then passes through a Venturi section that specifically constrains and increases the velocity of the admitted gas stream while also simultaneously creating a suction effect in order to target the admitted gas stream to an irradiating means to efficiently and rapidly oxidize and degrade air-borne volatile organic pollutants contained therein. Applicants assert that WO 96/37281 does not disclose a reactor comprising those elements presently recited in claim 1 or any claim dependent therefrom.

With respect to claim 22, WO 96/37281 does not teach or suggest the step of "constraining and increasing the velocity of the gas stream while simultaneously creating a suction effect". WO 96/37281 merely uses a fan located near the outlet of the housing to circulate the air through the housing. The fan merely provides a constant level of circulation of the air through the housing and in no way constrains the air flow or increases its velocity. The present application on page 20 for example, clearly describes that the Venturi section constrains the gas stream progressively towards a smaller diameter with minimum disturbance and a significant increase in gas velocity and a reduction in the pressure such that a suction effect is created. Further, on page 22 of the description, it is stated that the Venturi section establishes a "self-cleansing" system providing a vacuum condition or suction effect in which dirt/pollutants are aspired from the air stream and thus do not accumulate on the windows or reflectors. The gas stream leaving the Venturi section is directed such that it impinges at high velocity and with controlled and uniform pattern on an illuminated mesh section that comprises the catalyst. The device disclosed in WO 96/37281 has no capability of "constraining and increasing the velocity of the gas stream while simultaneously creating a suction effect". As such, method claim 22 cannot be anticipated by this cited reference.

Accordingly, the claims are fully patentable over WO 96/37281. Reconsideration is respectfully requested.

Claim Rejections - 35 U.S.C. 103

Claims 10, 12, 13, 21, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable in view of WO 96/37281 and further in view of DE 4012119A1. The Examiner asserted that DE 4012119A1 discloses a system for cleaning air that comprises a Venturi section upstream of a catalyst housed in an oxidation reactor.

This rejection is traversed. Specifically, Applicants respectfully disagree with the Examiner as this cited German reference actually discloses an oxidation reactor that does not involve photo-catalysis. Instead, this reference teaches an oxidation reactor that operates at 400° C to which is located downstream a Venturi section used to produce a combustion flame (see flame tube "9") to heat the gas stream leaving the oxidation chamber from 400°C to 600°C to provide for adequate heating of the air to be treated. This reference is silent with respect to any teaching or suggesting of a Venturi section for constraining and increasing the velocity of the gas stream while simultaneously creating a suction effect in order that the gas stream is directed uniformly at the irradiating means located at one end of the Venturi section. Furthermore, the Venturi as disclosed in DE 4012119A1 does not inherently provide a function of "constraining and increasing the velocity of the gas stream while simultaneously creating a suction effect".

Obviousness must be considered in light of the problem facing the inventor and is ultimately a question of law. It is important to note that the Examiner must consider the totality of the evidence in order to avoid utilizing hindsight in the obviousness determination, *In re Corkill*, 771 F.2d 1496 (Fed.Cir. 1985). Using hindsight to select items that are pertinent art is prohibited, *Union Carbide Corp. v. American Can Co.*, 724 F.2d 1567 (Fed. Cir. 1984). The Examiner must give some reason as to why one of ordinary skill in the art would have been prompted to combine the teachings of the cited references to arrive at the claimed invention since it is the burden of the Examiner to establish a *prima facie* case of

obviousness. In the present case, there is no intrinsic basis in the prior art or some extrinsic factor that would prompt one of ordinary skill in the art to combine the teachings of the references as suggested by the Examiner, especially since both WO 96/37281 and DE 4012119A1 are silent with respect to the provision of any mechanism for "constraining and increasing the velocity of the gas stream while simultaneously creating a suction effect" in order that the gas stream is directed uniformly at the irradiating means to increase the efficiency of the device. There is no desire stated in either cited reference that such constraining and increasing the velocity of the gas stream and simultaneously creating a suction effect is desired and thus no provision for a mechanism to achieve this. Also, there is no suggestion or expressed expectation of success in the prior art that would have led one to perform any experimentation to lead one skilled in the art to expect that any such combination of selected teachings would lead to the successful reactor and method as presently claimed. Accordingly, reconsideration is requested.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable in view of WO 96/37281 and further in view of Goswami (U.S. Patent No. 5,835,840. This rejection is traversed. It has already been demonstrated that WO96/37281 lacks any teaching of a Venturi section as now recited in claim 1 in order to constrain and increase the velocity of the gas stream while simultaneously creating a suction effect. Goswami does not correct this defect and is silent with respect to any such functioning Venturi section. As claim 20 includes the limitation of claim 1, the provision of a fan simply within the disinfecting system does not render claim 20 obvious. Reconsideration is respectfully requested.

Conclusions

In view of the foregoing it is asserted that the present claims overcome all of the Examiner's rejection and are thus patentable. An allowance of the claims is respectfully requested.

Respectfully submitted,

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